# The "Perfect Mitre" Jig

***by Garrett Lambert***

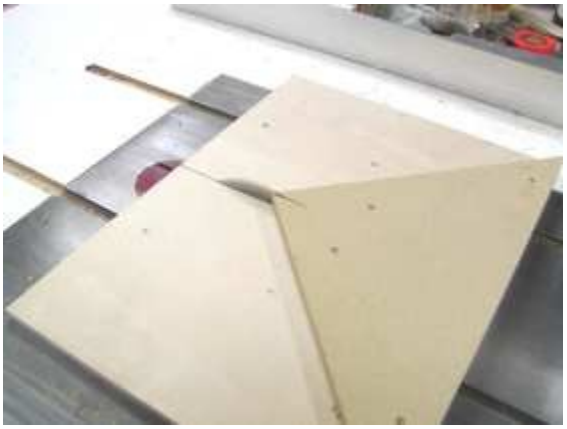
**The easiest way to achieve 4 perfect mitres is with a simple jig on the table saw. It takes only about 30 minutes to make.**

Install the blade you will use to cut mitres, and use it each and every time.

Make a sled from a piece of 1/2" plywood 24" wide, i.e. enough to span the two mitre gauge slots on your TS, and about 18" deep. Include an original corner that you know is dead square. Make 2 hardwood runners that fit SNUGLY in the slots. There are two ways to line up the sled to fasten the runners. I simply used the front edge of the saw table, but if you're worried holding everything in place while you drill and drive screws, check to make sure your fence is dead parallel to the slots, and then slide it out of the way to the right. Lower the blade and centre the plywood on the blade and over the slots on top of the hardwood runners. With the original square corner on the right side directly in front of you, bring the fence up to the piece of plywood and lock it in position. With the plywood pressed against the fence, screw it to the runners. Set the sled aside.

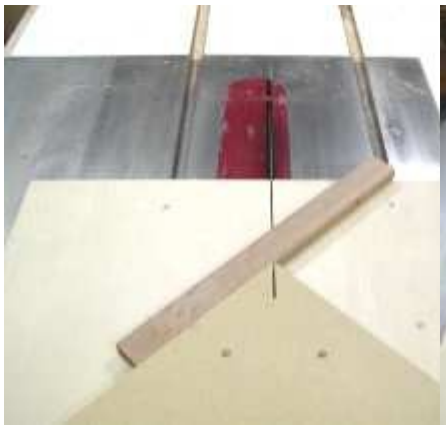
Now you need to cut a triangle out of a piece of 3/4 plywood or MDF, that also has an original corner checked for square. (That corner will point to the sawblade.) To cut it, I used another shop-made jig that I set to 45° the triangle out, I used another shop-made jig that I trust, because I set it to 45° with a drafting square. However, you can also get there by cutting a square using the fence - make the sides the same length as the width of the sled - and cut along its diagonal ACCURATELY making sure not to cut through the original corner. That will give you 2 right angle triangles. Check with a drafting square until one of them is dead on.

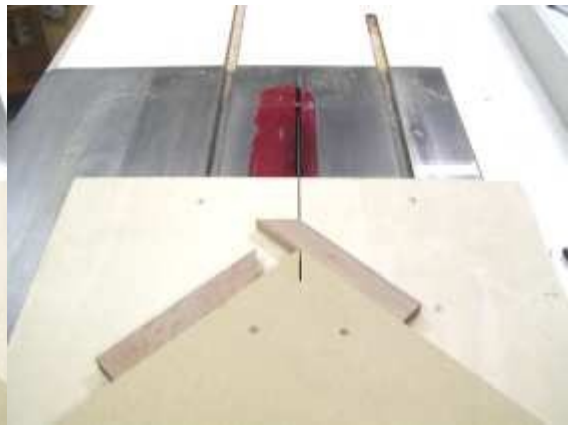
Put the sled back on the saw, and place the 3/4 triangle on it with long side against the front edge of the sled and the original corner facing the saw blade. Mark the point on the sled and set the triangle aside. Raise the blade and push the slider into it, cutting up to the point you just marked



Turn the saw off, and replace the triangle. Line it up so that its point is exactly centred on the cut, and its long side is exactly lined up with the edge of the slider. Fasten the triangle onto the slider with about 4 screws, turn the saw on, and cut into the triangle an inch or so.

You now have a dedicated jig that will cut perfect left and right mitres without adjustment every time. Even if your placement of the triangular piece was slightly off, if you cut each pair of boards one on either side as shown in the 3 photos below, each joint will still be perfect.





**As a refinement, and since one of the problems with any jig of this type is keeping the work from moving during the cut, it's worth installing a piece of sandpaper on the sled and fence surfaces, and if you really want to be fancy, a lever clamp on either side.**